

Week 2 - Lab 2: Spreadsheet Design Rules

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Overview

- This Tutorial includes the following topics:
 - Some basic rules about design
 - Parts of a well designed spreadsheet
 - More Examples

Basic Design Rules

1. Design first on paper:

- Graph paper often works well.

2. Test and edit your calculations:

- use intermediate calculations
- check-sums to ensure calculations are correct

3. Keep the components of a calculation visible:

- No "magic numbers".
- Place fixed numbers used in a calculation in their own cell with a descriptive title.

4. Be aware of the geography of the spreadsheet:

- Arrange your information so that it is well spaced and easy to take in at a glance.

Well-Designed Spreadsheet

- Components of a well-designed spreadsheet:
 - **Introduction:**
 - What is this spreadsheet or workbook about?
 - Note the title, purpose, author, creation and revision dates etc.
 - **Model and Assumptions:**
 - Justify any models, summary statistics, or calculated variables you are using.

Well-Designed Spreadsheet

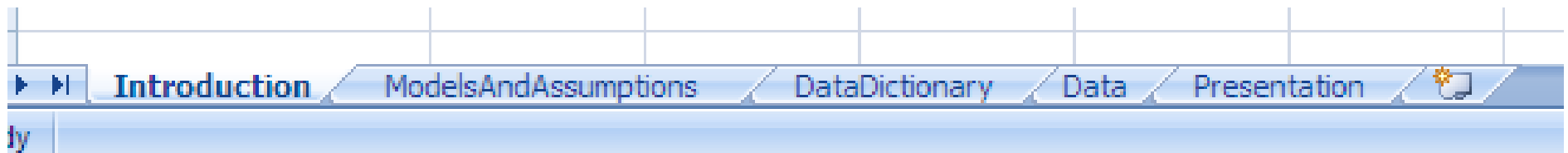
- Components of a well-designed spreadsheet:
 - **Data Dictionary:**
 - For every variable in the spreadsheet note: its
 - **Location** (cell range),
 - **Name**,
 - The **Data Class** it is (Raw Data, Statistical Summary, Calculated Variable, Score etc.),
 - **Data Type** (e.g. Integer, Text, Currency, Date, etc.) and
 - **Description** (a description of the data or what it's 'purpose' is).
 - **Raw Data:**
 - Present your raw data in tabular form -- with **columns representing variables** and **rows representing cases**.

Well-Designed Spreadsheet

- Components of a well-designed spreadsheet:
 - **Calculated Data:**
 - Summary Statistics:
 - Usually Summary statistics result from calculations across rows for a single column.
 - Derived variables:
 - Often based on calculations across columns for a row.
 - **Presentation:**
 - Emphasize the final information you wish to show without excessive background details.
 - Use charts wherever appropriate to summarize large volumes of data.

Example

- [Media:AnalysisExamples
PresidentsDataAndAnalysis 4 20080306.xls](#)



Example – Introduction

	A	B	C	D	E	F	G	H	I	J	K
1	Introduction: Political Control of the Economy										
2											
3	This spreadsheet is based on a Data Set by Edward R Tufte gathered from U.S. Presidential elections between 198 and 1976										
4											
5	Using Tufte's data we look at Incumbent Advantage in terms of Change in Real Disposable Income										
6											
7	Reference:	"Political Control of the Economy"									
8		By Edward, R. Tufte									
9		Princeton University Press, 1978									
10		pp. 121 to 123									
11											
12	Data Source:	Table 5.5 from above reference, pp. 121									
13											
14											
15											
16											

Example – Model and Assumptions

[illegible]

Example – Data Dictionary

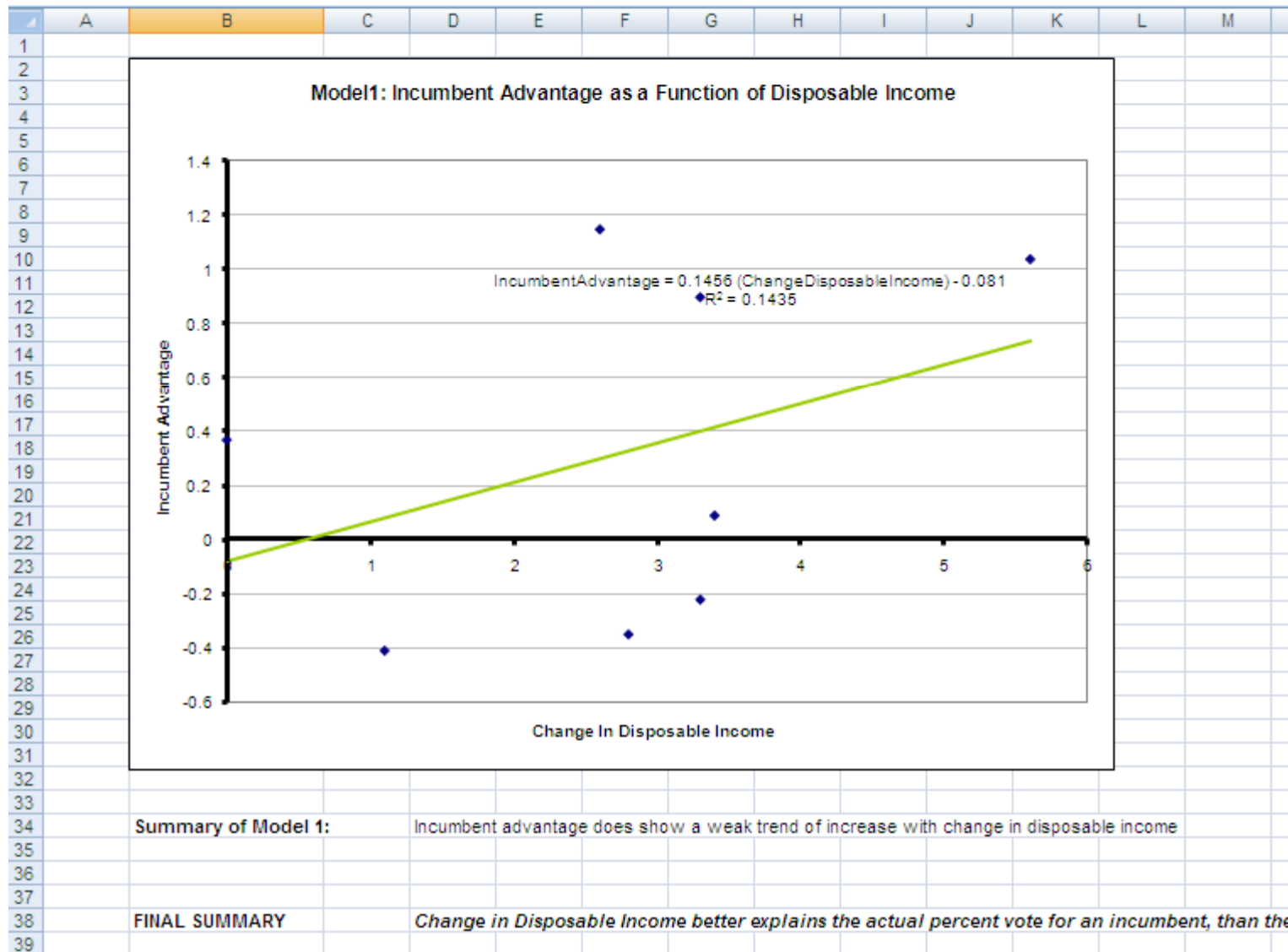
[illegible]

Example – Data

	A	B	C	D	E	F	G	
1	Year	Incumbent	ChangeDisposaleIncome	VoteForIncumbent	IncumbentAdvantage		Model1PredictionsforIncumbentAdvantage	Model2PredictionsforIncumbentAdvantage
2	1948	Truman	3.4	52.3	0.09		0.41404	0.41404
3	1952	Stevens	1.1	44.6	-0.41		0.07916	0.07916
4	1956	Eisenhower	2.6	57.8	1.15		0.29756	0.29756
5	1960	Nixon	0	49.9	0.37		-0.081	-0.081
6	1964	Johnson	5.6	61.3	1.04		0.73436	0.73436
7	1968	Humphrey	2.8	49.6	-0.35		0.32668	0.32668
8	1972	Nixon	3.3	61.8	0.9		0.39948	0.39948
9	1976	Ford	3.3	48.9	-0.221		0.39948	0.39948
10								

H	I	J	K	L	M	N	O	P	Q
2Predictionsfor VoteForIncumbent				Model1Errors	Model2Errors			Model1ErrorsSqua	
54.82322				-0.32404	-2.52322			0.105	
49.23813				-0.48916	-4.63813			0.23928	
52.88058				0.85244	4.91942			0.72665	
46.567				0.451	3.333			0.2034	
60.16548				0.30564	1.13452			0.09342	
53.36624				-0.67668	-3.76624			0.4579	
54.58039				0.50052	7.21961			0.25052	
54.58039				-0.62048	-5.68039			0.385	
SumOfErrors				-0.00076	-0.00143				
					MeanSquaredError			0.30765	

Example – Presentation



Example – Presentation

